## AMENDMENTS TO THE CLAIMS

- 1. (currently amended) A composition comprising:
- a nucleic acid that binds to a blood clot or to a protein that is a component of a mammalian blood clotting cascade thrombin; and
- a protein attached to said nucleic acid at either the 5' end or the 3' end or both wherein said protein is streptavidin or a variant of streptavidin that retains biotin binding activity.
- 2. (previously presented) The composition of claim 1, wherein said nucleic acid is derivatized at the 5' or 3' end or at both the 5' and 3' ends with a reagent specific for binding to said protein thereby forming a complex between said reagent and said protein.
- 3. (original) The composition of claim 2, further comprising a linker that covalently attaches said protein to said nucleic acid or said reagent to said nucleic acid.
- 4. (previously presented) The composition of claim 2, wherein said reagent is biotin.
- 5. (previously presented) The composition of claim 3, wherein said reagent is biotin that is covalently attached to a linker.

- 6. (canceled)
- 7. (canceled)
- 8. (currently amended) The composition of claim 6 any one of claims 1-5 wherein said composition is further labeled with a radioactive label.
- 9. (original) The composition of claim 8, wherein said radioactive label is  $^{123}$ I,  $^{124}$ I,  $^{125}$ I,  $^{131}$ I,  $^{99m}$ Tc,  $^{186}$ Re,  $^{188}$ Re,  $^{64}$ Cu,  $^{67}$ Cu,  $^{212}$ Bi,  $^{67}$ Ga,  $^{90}$ Y,  $^{111}$ In,  $^{18}$ F,  $^{3}$ H,  $^{14}$ C,  $^{35}$ S or  $^{32}$ P.
- 10. (original) A method for imaging blood clots in vivo comprising intravenously administering to a subject the composition of claim 8 and imaging the emission from said radioactive label.
- 11. (currently amended) A method for preventing coagulation of blood in a subject requiring anticoagulation treatment comprising intravenously administering an amount of the composition of claim 68 effective to inhibit coagulation to said subject.
  - 12. (canceled)

- 13. (previously presented) A method for inhibiting degradation of a nucleic acid in the blood comprising attaching streptavidin or a variant thereof that retains biotin binding activity to said nucleic acid at the 5' or 3' end or at both the 5' and 3' ends.
- 14. (currently amended) The method of claim 13, wherein said nucleic acid is derivatized with biotin and the streptavidin or variant thereof binds to the biotin.
- 15. (previously presented) The method of claim 13 wherein said nucleic acid is DNA, 2'-fluoropyrimidine RNA or 2'-aminopyrimidine RNA.
- a nucleic acid, that is derivatized at the 5' or 3' end or at both the 5' and 3' ends with a protein\_streptavidin or a variant of streptavidin that retains biotin binding activityhaving a half life in serum of greater than 1.0 hours, that specifically binds to a blood clot or to a protein that is a component of a mammalian blood clotting cascade thrombin, wherein said nucleic acid is 2'-fluoropyrimidine RNA or 2'-aminopyrimidine RNA.

## 17. (canceled)

- 18. (currently amended) The composition of claim 16 wherein the wherein said nucleic acid is derivatized at the 5' or 3' end or at both the 5' and 3' ends with a reagent specific for binding to said protein streptavidin or variant thereof thereby forming a complex between said reagent and said protein streptavidin or variant thereof.
- 19. (previously presented) The composition of claim 18, further comprising a linker that covalently attaches said reagent to said nucleic acid.
- 20. (previously presented) The composition of claim 19, wherein said reagent is biotin that is covalently attached to said linker.
  - 21. (canceled).
- 22. (previously presented) The composition of claim 16, wherein said protein is covalently attached to said nucleic acid through a linker.

- 23. (previously presented) The composition of claim 16, wherein said nucleic acid is less than 50 nucleotides long.
- 24. (previously presented) The composition of claim 16, wherein said composition is further labeled with a radioactive label.
- **25.** (previously presented) The composition of claim 24, wherein said radioactive label is  $^{123}I$ ,  $^{124}I$ ,  $^{125}I$ ,  $^{131}I$ ,  $^{99m}Tc$ ,  $^{186}Re$ ,  $^{188}Re$ ,  $^{64}Cu$ ,  $^{67}Cu$ ,  $^{212}Bi$ ,  $^{213}Bi$ ,  $^{67}Ga$ ,  $^{90}Y$ ,  $^{111}In$ ,  $^{18}F$ ,  $^{3}H$ ,  $^{14}C$ ,  $^{35}S$  or  $^{32}P$ .
- 26. (previously presented) A method for imaging blood clots in vivo comprising intravenously administering to a subject the composition of claim 24 and imaging the emission from said radioactive label.
- 27. (previously presented) A method for preventing coagulation of blood in a subject requiring anticoagulation treatment comprising intravenously administering an amount of the composition of claim 16 effective to inhibit coagulation to said subject.

- 28. (previously presented) The composition of claim 1, wherein the nucleic acid comprises nucleotides having the sequence of SEQ ID NO: 1 or SEQ ID NO: 2.
- 29. (previously presented) The composition of claim 16, wherein the nucleic acid comprises nucleotides having the RNA sequence corresponding to SEQ ID NO: 1 or SEQ ID NO: 2.
  - 30. (canceled)
  - 31. (canceled)
  - 32. (new) A composition comprising:
- a nucleic acid that specifically binds to thrombin; and a protein attached to said nucleic acid at either the 5' end or the 3' end or both wherein said protein is streptavidin or a variant of streptavidin that retains biotin binding activity; wherein the nucleic acid is obtained by a selection process comprising:
- i) providing a pool of polynucleotides each comprising a randomized sequence between segments of constant sequence;

- ii) contacting the pool of polynucleotides with thrombin in a binding solution to obtain polynucleotide:thrombin complexes and unbound polynucleotides;
- iii) separating polynucleotide:thrombin complexes from unbound polynucleotides; and
- iv) isolating the polynucleotides of the polynucleotide:thrombin complexes.
- 33. (new) The composition of claim 32, wherein the process of obtaining the nucleic acid further comprises:
- v) amplifying the polynucleotides isolated from the polynucleotide:thrombin complexes and
- vi) repeating the selection process using a binding solution during the contacting step ii) so that a higher affinity of the nucleic acid for the target protein is required to form a polynucleotide:thrombin complex.
- 34. (new) The composition of claim 33, wherein in step vi) the selection process is repeated using a binding solution during the contacting step ii) having an increased salt concentration.

- **35.** (new) The method of claim 33, in which the amplifying step v) is performed by at least one polymerase chain reaction.
- 36. (new) The method of claim 32, in which the isolating step iv) comprises cloning of the polynucleotides.
- 37. (new) The composition of claim 1 or claim 16, wherein the nucleic acid component comprises a nucleotide sequence that forms a guanine quartet.
- 38. (new) The composition of claim 1 or claim 16, wherein the nucleic acid component comprises residues 1-6 of SEQ ID NO. 1 linked to the 5' end of residues 10-16 of SEQ ID NO. 1 by a sequence of three nucleotides.